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Social organization and water control among the Borana of Southern Ethiopia

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ILCA
KENYA

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Views expressed are those of the author and should not be interpreted as reflecting the views of any organization.

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ABSTRACT

The long-term success of pastoral production systems depends on the adjustment of the human and livestock populations, which are potentially expanding, to the range resource, which is finite. Among the Borana of southern Ethiopia, this adjustment has been achieved through a complex socio-political system controlling human reproduction and the maintenance and use of dry-season wells. A complex system of generation classes, known as Gada, helps limit population expansion, and access to water during the dry season is controlled by well councils whose membership and function are based on a flexible, but well defined, system of traditional rules.

KEY WORDS

Borana, southern Ethiopia, pastoral production, Gada system, well council

0.0 Introduction

A problem common to a number of East African cattle herding societies is one of increasing imbalance in the ecosystem on which they are based. Animal and human populations are growing, while the pasture resource on which they depend is diminishing, both in terms of grazing area and range productivity.

This situation has been brought about by a variety of factors. An explanation of the crisis which pastoral societies are currently undergoing must be sought partly in relationships intrinsic to the pastoral mode of production and partly in external factors due to the changing natural, economic, political and administrative environment.

Cattle are the main production factor in pastoral enterprises. Cattle are productive capital. But since animals produce other animals, the main product in this enterprise is capital gains, i.e., the bulk of the income produced is automatically re-invested in the enterprise unless the husbander decides to remove animals through sale, slaughter, etc. The herd-owner is thus always faced with potential growth in his pastoral enterprise. Under conditions of communal land tenure and free access to pasture for community members, there are no limits, except those imposed by labour requirements, to the number of animals it is advantageous for the herd-owner to accumulate. Communal wealth (pasture) is in this way transformed into private wealth (animals). Reducing the herd means saving the communal resource, but without any guarantees that this saving will benefit the individual as long as there are no organizational mechanisms to prevent others from grazing the pasture the individual has saved.

On the aggregate level, this of course leads to overstocking of the range and overgrazing. As pressure on the pasture mounts, productivity per animal declines and the herds become increasingly susceptible to disease, drought and starvation. In this situation even minor fluctuations in range productivity may trigger mass herd mortality, as has been

demonstrated by the Sahelian crisis of 1973-75.

Under traditional conditions, livestock deaths would result in a reduced human population in the range areas, leaving the pastures understocked for some years until the more fortunate part of the population could again build up their herds to critical levels.

Another special feature of pastoral production must also be mentioned here. In a pastoral enterprise, a certain amount of labour is required. On the one hand, the labour that is required for the care of one animal is usually sufficient for several animals. On the other hand, once the minimum labour requirements are met, the productivity of the herd will not increase with the introduction of more labour. A minimum labour force is thus a necessary asset to the enterprise, but if and when this labour force grows, the enterprise is not directly rewarded by higher production. The critical factor is productive animals, and an excessive labour force thus becomes a threat to the economic viability of the management unit.

The economic viability of households is of course also related to the processes of overgrazing. As pressure on pastures mounts and productivity per animal declines, the threshold for viability becomes higher, i.e., the number of animals required for the subsistence needs of one person increases. Consequently one would expect an increasing number of households to fall below the threshold. In this situation the options are limited to either consumption of the productive herd capital, with subsequent elimination of the household from the pastoral sector, or an increased involvement in other subsistence activities.[1]

The various organizational forms of pastoralism may be seen as adaptive techniques that have evolved through a

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1. For a more thorough discussion of these points, see Barth, 1973 and Haaland, 1977.

long evolutionary process. The adaptive success of these techniques has proved itself through the very survival of the societies in question, but it is equally important to bear in mind that these adaptations evolved and were adequate under circumstances that were different from those existing today. The self-destructive aspects of pastoral adaptations were checked by a number of regulatory mechanisms, such as tribal warfare as a means of expanding territorial holdings and expelling competing groups, disease and famine as a control on net growth rates of both the animal and human population, and the departure or absorption of non-viable households, which all served to adjust the ratio of human consumers to the niches they were exploiting.

While the self-destructive properties of the human adaptations in large parts of semi-arid Africa remain, a number of these regulatory mechanisms have knowingly or unknowingly been removed, through ill-designed development efforts and famine relief programmes. This is not to say that technical and humanitarian aid is bad, but rather that such aid could be much more constructive if it were planned in such a way that short-term benefits did not imply long-term destruction, or that individual adaptations to development inputs did not have maladaptive implications on the aggregate level.

The Borana of Southern Ethiopia have so far been only marginally affected by development, and large-scale famine relief was introduced for the first time during the drought of 1973-75. The Borana, however, seem to have worked out a finely tuned adaptation to their environment which has caused comparatively little degradation. In the next section, the institutions of Borana social organization will be described. These imply a certain measure of control over the utilization of pasture and water resources, as well as over the reproductive performance of the human population.

1.0 The Borana Population

The Borana are found in northern Kenya and southern Ethiopia, where they occupy a more-or-less continuous territory extending from the Uaso Nyiro River in Kenya north to the Ganale River in Ethiopia. This report, however, will focus on the Borana areas in Ethiopia.

In Ethiopia, the Borana are found within the two awradja (provinces) of Arero and Borana, but the distribution of their population has not been studied. It seems reasonable to believe, however, that very few Borana live in the small towns of the area and that the bulk of the Borana population is found in the pastoral areas in the triangle between the towns of Tertelle, Arero and Moyale. The main reason for this assumption is that this area contains practically all of the deep perennial wells on which the Borana depend in the dry season. One would thus expect a seasonal variation in the distribution of the population, but this must also be the object of future studies.

Census data for the Borana in Ethiopia are not available. Apparently, no census has ever been carried out. The population figures that exist are based on more-or-less accurate estimates and should be regarded with great caution. These estimates range from 30 000 people, which is obviously too low, to 230 000, which is probably too high.

A survey of the Sidamo administrative region carried out by the Ethiopian Central Statistical Office (CSO) in 1968 gives the total population of the Arero and Borana awradja as 105 500 people. These figures are not broken down by ethnic categories and the figure for Borana awradja is based on an old estimate. Borana awradja was not included in the CSO survey and the figures are thus not very helpful, either in assessing the total Borana population or in describing the population dynamics of the area.

The population estimates given in the AGROTEC report to the Ethiopian Livestock and Meatboard in 1974 do not

specify the ethnic categories used, but lumps various groups together as the 'pastoral population of the Borana Plateaux'. This population is estimated at 236 000 people. It is not known what percentage of this population is Borana and it is difficult to assess how exact this estimate is.

Population counts in connexion with the relief operations in the area in 1973-75 indicate a total Borana population in Ethiopia of some 150 000 people. This figure is based on actual counting and in spite of its obvious weaknesses, such as very irregular circumstances and poorly trained personnel, it is probably the best available estimate.

The only estimates of Borana population dynamics are given in the AGROTEC report. This report sets the rate of natural increase in the pastoral population at 1.5 to 1.8% per annum. Out-migration is estimated at 0.3% per annum and the rate of urbanization at 0.2% per annum. The net growth rate of the pastoral population of the Borana Plateaux, of which the Borana form at least the large majority, is thus estimated at 1.0 to 1.3% per annum. It is difficult to know how exact these estimates are, but it seems that the growth rates of the Borana population are extraordinarily low.

1.1 Population Growth and the Gada System

Human reproduction among the Borana, and thus natural population increase, is regulated by several cultural factors. One factor peculiar to the Borana is the Gada system, in which every Borana participates.[2]

The Gada system is a complex organizational framework which divides the Borana population into a number of generation classes. These generation classes are again grouped in

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2. Gada systems are also found in a number of other societies in southern Ethiopia, but are not identical to the Borana system.

five series, called patriclasses by Legesse 1973:189) The complexities of the Gada system will not be treated here, but a few features and their implications for human reproduction must be pointed out.

A generation class in the Gada system is known in Borana as a luba and the five patriclasses are called gogessa. Membership in a luba is ascribed to males at birth, while females derive a luba identity from the man they are attached to, first their fathers and later their husbands. The luba will be discussed here only with reference to males.

Membership in a luba is determined exclusively by genealogical level. Age has nothing to do with luba affiliation and the age composition of a particular luba may be very wide.

A new luba is opened for recruitment every eight years, in one gogessa at a time, so that to each gogessa a new luba is added every 40 years. This means that there is always a time-span of 40 years between the luba of a father and the luba of his sons. The luba is never formally closed to recruitment and it exists as long as there are members belonging to it.

After a new luba comes into being, it passes through a series of grades organized in a cycle, so that a luba of sons enter any particular grade 40 years after the luba of their fathers. The luba goes through a number of rites in the different grades and behaviour is regululated according to the current grade. These regulations only concern the luba members who actually are members while the luba is in any particular grade, but do not affect members born into the luba after it has been through the grade.

As a luba reaches the 32nd year of the cycle (the beginning of the fifth grade) its members are permitted to marry. Whether they actually do so depends on the biological age of the member, the availability of bride-wealth, the progress of marriage negotiations, etc., but no Borana may

marry before his luba has reached this grade. While marriage is permitted in the 32nd year of the cycle, a Borana may not raise sons before the luba reaches the 40th year of the cycle and to raise daughters he must wait until the 45th year.

It seems to be well documented, both by statistical (Legesse 1973:142) and observational (Haberland 1963:200) evidence, that the Borana adhere strictly to these rules, even to the extent of practicing infanticide in instances where the rules are infringed upon.

The Ethiopian Government, of course, forbade the practise of infanticide many years ago, and it is rare today to find a Borana who admits that it still occurs. There are numerous examples of compromise solutions, however, where such 'illegitimate' children are given up for adoption outside Borana society, to missionaries, traders, townspeople or the despised Wata hunters. It is inevitable that these rules, delaying both marriage and child-rearing and reducing the number of children maintained by giving them up for adoption or practising infanticide-influence deographic trends among the Borana. With the present knowledge of Borana population dynamics, however, it is not possible to know

a) how many people are affected by the rules, or
b) how these rules are articulated in the aggregate population.

Any conclusions with regard to these questions would require detailed information on the age-structure of the different luba as well as on the marital history of luba members.

It may not be possible to explain the low growth rates of the Borana population with reference to the Gada system alone, but any demographic description and analysis of the Borana must examine the Gada system for its implications for population growth. If the Gada system actually functions as a brake on growth rates, then it is a very important adoptive mechanism in Boranaland. If the Gada system breaks down and at the same time health services, famine relief and government

security measures improve among the Borana, the result is likely to be rapid population growth. This will of course have grave implications for the balance between human and animal numbers in Boranaland. An unchecked population growth will sooner or later reach a threshold where the carrying capacities of the niches exploited are exceeded, thus threatening the resource basis on which the Borana population at present depends.

With present knowledge, the connexion between the Gada system and population trends in Borana can only be described hypothetically. A corroboration of the hypothesis that the Gada system results in reduced population growth will require thorough demographic analyses which remain to be done.

1.2 Borana Livestock

For the purpose of this report, the Borana will be considered as pure pastoralists who depend exclusively on their herds for subsistence, either directly in the form of milk, milk products, blood and meat, or indirectly in the form of imported cereal bought through sale or barter of animals and animal products.

The predominant type of cattle owned by the Borana is a breed of the shorthorn East African thoracic humped Zebu (Bos indicus) known as the Boran Zebu. Some important characteristics of this breed are its high resistance to most indigenous livestock diseases, tolerance to heat and general hardiness. The Boran Zebu compares well with other East African breeds with regard to calving rate, calving intervals and milk production per lactation (see Payne 1970:149). It is also considered one of the outstanding beef breeds of Africa (Payne 1970:145, 148). Other breeds, such as the Abyssinian Shorthorn Zebu and the Small Somali Zebu, are occasionally seen in Borana herds, probably acquired through raiding.

The Borana also keep sheep, goats and camels. The numbers of these species vary from place to place, but the subsistence role of camels and goats is particularly important in the drier parts of Borana. Horses, mules and donkeys are also kept, as riding animals and beasts of burden

The estimates of the Borana livestock population provided in the AGROTEC report indicate approximately 820 000 head of cattle, 22 000 camels and 80 000 sheep and goats prior to the drought of 1973-75. No figures are available for horses, mules or donkeys.

Reliable data on the composition, dynamics and productivity of Borana herds are not available. The same lack of data makes estimates of off-take rates, both in the traditional and the marketing sector, difficult and unreliable.

2.0 Rainfall

The Borana areas of Ethiopia are located in the foothills of the Bale-Sidamo Massif. The landscape slopes gently from the north-west to the south-east, between 1 500 and 1 000 m with peaks in the mountain formations reaching above 2 000 m. Only a small part of Boranaland falls below 1 000 m. The only perennial river in the area is the Dawa, which runs through the northeastern area.

In Boranaland, as elsewhere in Ethiopia, altitude is an important modifier of climate; rainfall seems to be correlated with altitude. Annual rainfall in the area ranges from less than 500 mm in the southeast to over 700 mm in the northwest. The rainfall pattern is bimodal, with the main rains (Ganna) from March to May/June and the secondary rains (Haggaya) from September to November. The period from June to September (Adolessa) is characterized by heavy cloud cover, fog, mists and occasional showers, while the main dry season (Bona or Bonhaggaya) occurs from November to March.

Climatological data from Boranaland are scarce, but suggest that 50% of the total annual rainfall comes in Ganna and close to 40% in Haggaya. However, rainfall distribution, both in terms of time and space, is erratic and highly unreliable. Most of the rain is concentrated in heavy tropical thunderstorms, and downpours of 50 to 100 mm within a few hours in a limited area are not uncommon. Figures for run-off rates and evapotranspiration are not available, but they are thought to be high.

2.1 Ecological Adaptations

Rainfall is the main factor underlying the availability of the two most important natural resources on which the Borana pastoralists depend - namely, pasture and water. This report focusses on how the Borana pastoralists exploit these resources. This exploitation, however, is not only a matter of technology for the extraction of energy from nature, but also of

> . . . mechanisms of adjustment between human numbers and the carrying capacity of niches. The stability of the subsistence patterns, and thus of any culture or society based on those patterns, depends on the effectiveness of such mechanisms. By means of them, fluctuations or progressive changes in population produced by natural fertility and mortality rates can be 'corrected' and the rate of exploitation controlled, not by the ultimate adjustments of birth and death rates, but by imposed bars and incentives. These will mainly relate to recruitment patterns and involve monopolies on property or activities, supported by culturally determined views on legitimacy and thus ultimately by political sanctions.
>
> (Barth 1964:3-4)

The exploitative activities of the Borana pastoralists are culturally conditioned and a study of their adaptations should try to demonstrate how cultural factors have implications for the regulation of access to and exploitation of natural resources.

Access to these resources in Boranaland is gained primarily by maintaining a Borana identity - by being a Borana - and secondarily by subscribing to the Borana rules governing the utilization of pasture and water.

2.2 Pasture in Borana

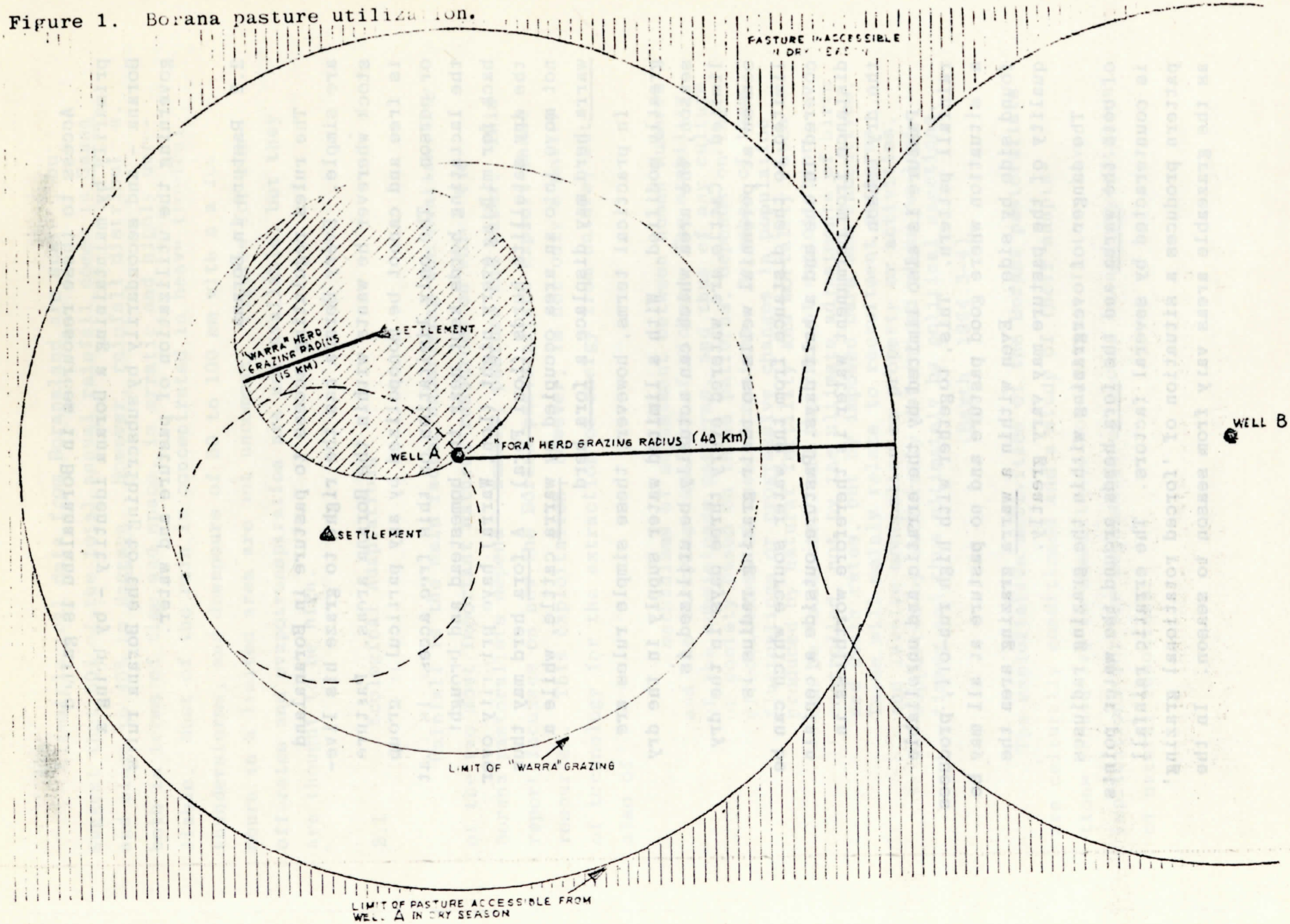
The rules regulating access to pasture in Boranaland are simple. Every Borana has the right to graze his livestock wherever he wants within the Borana areas. Pasture is free and cannot be monopolized by any particular group or person. The only limitation on this free access is that the lactating herds kept near the homestead and brought back for milking every night (Loni Warra) have priority over the dry satellite herds (Loni Fora). A fora herd may thus not move into an area occupied by warra cattle, while a warra herd may displace a fora herd.

In practical terms, however, these simple rules are greatly modified. With a limited water supply in the dry season, the area which can actually be utilized is limited. Cattle are watered every three days in the dry season at perennial wells so their grazing radius is limited to the distance from the water source which can be covered in one and a half days. Pasture outside a certain distance from permanent water is therefore worthless in the dry season.

Pasture is also limited by the erratic and unreliable rainfall pattern. This, together with high run-off, produces a situation where good pasture and no pasture at all may be found side by side. Even within a warra grazing area the quality of the pasture may vary greatly.

The danger of overgrazing within the grazing radiuses of both the warra and the fora herds around the water points is counteracted by several factors. The erratic rainfall pattern produces a situation of 'forced rotational grazing' as the grazeable areas vary from season to season. In the

Figure 1. Borana pasture utilization.



rainy season, the herds move out of the areas close to permanent water into rangeland which becomes accessible due to the presence of surface water. A grazing system approaching transhumance thus obtains, permitting the dry-season pastures around the wells to lie fallow during the rainy season. Different rainy-season pastures and different dry-season pastures may be available from year to year, depending on the vagaries of the rain.

A final consideration is the number of animals which can be grazed within the reach of a well and the number of animals which can actually be watered there. If the grazing radius of a fora herd is set at the arbitrary, but quite reasonable, distance of 45 km, a total area of 635 000 hectare would be available for the warra and fora herds. If the carrying capacity of this area is 10 ha per head (also an arbitrary but quite reasonable figure), this means that 21 000 head of cattle must be watered daily if the range is stocked to capacity. Figures for the watering capacity of the different Borana wells are not available, but it hardly seems reasonable that this amount of stock could be accomodated. For this calculation, a very wide grazing radius has been set, but the carrying capacity has been assumed at a low value, so the livestock numbers projected should be reasonable.

The vulnerability of this situation was clearly demonstrated during the 1973-75 drought. Rainfall during this period was below average, barely adequate for grass growth but not enough to fill the surface-water ponds in the rainy-season areas. This meant that the Borana had to continue relying on their permanent water sources during the rainy season and consequently had to use pastures which normally would have been rested at that time. The pressure on these pastures mounted and in some areas serious overgrazing occurred. At some locations, normally permanent water sources dried up, resulting in even higher pressure on the pasture served by the remaining water points. The yield of all wells

was well below normal, however, so the pressure on pasture was alleviated to some extent by the increased herd mortality. The variations in cattle mortality even within the same area become understandable when one considers that people moving into a new area were at a disadvantage in terms of obtaining water from the wells which were already fully utilized. During this period it was not uncommon to see people lighting fires and working through the night to water animals from the wells.

2.3 Water in Borana

If pasture in Borana is freely accessible, water is not. The pasture which can be used at any given time within an area is not only limited by the actual occurrence of water, but also by how successful the management unit is in pressing claims for water in competition with other units, and in maintaining their watering rights.

Water is available in Borana from three basic sources which should be kept distinct from each other, as the set of rights regulating the use of these different water sources varies.

Occasional water, such as floods in dry river-beds and natural pools and puddles of rainwater, lasting for a few days, appear with some regularity in the rainy season, dotted over extensive areas. This source of water, known to the Borana as lola, is regarded in much the same way as pasture. Nobody may claim special rights over it or try to monopolize it, but where it occurs in the neighbourhood of settlements, these have priority for human use, much the same way that warra have priority over fora herds.

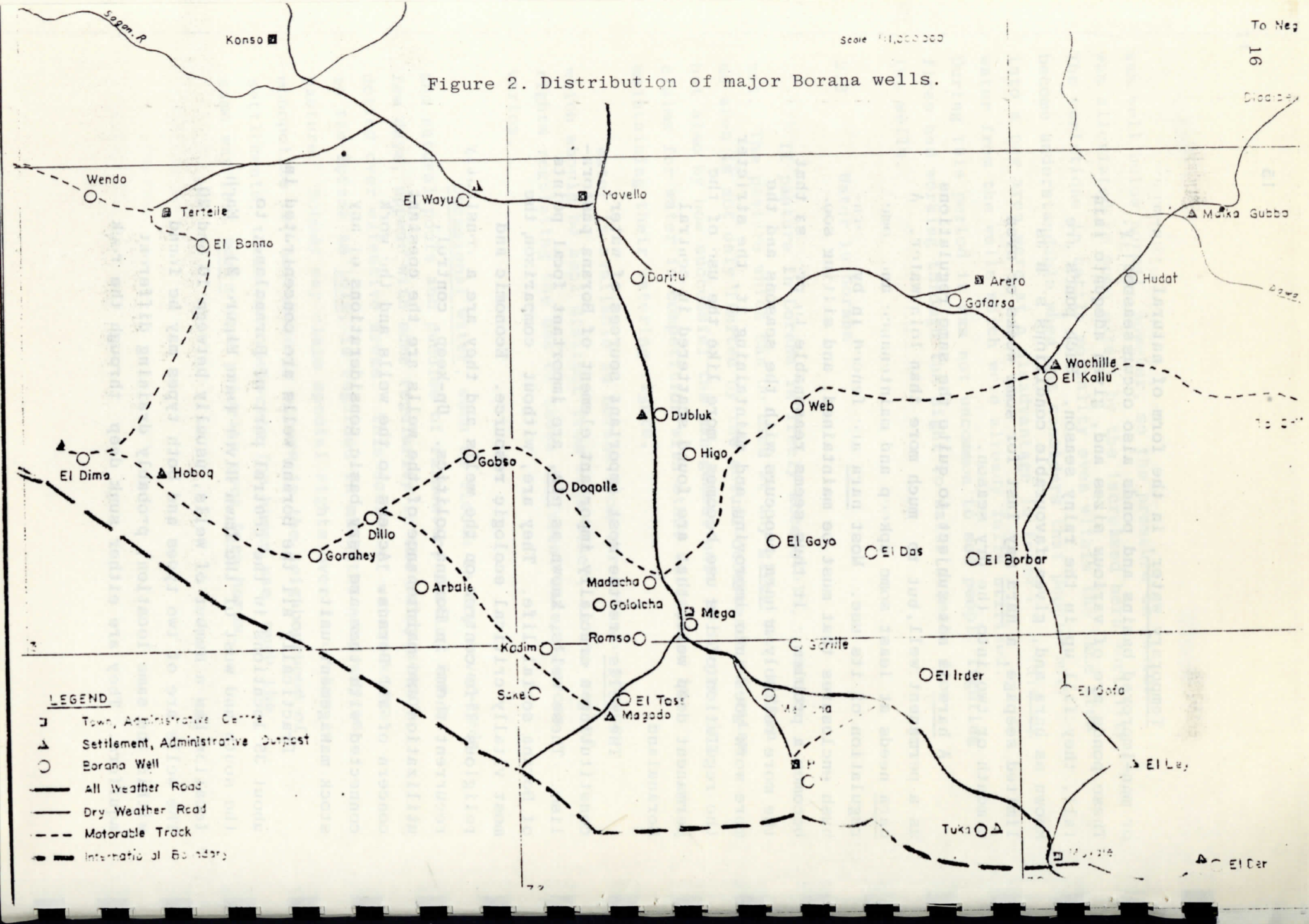
Temporary water, in the form of natural, man-made or man-improved basins and ponds also occurs seasonally. These ponds are of various sizes and, given adequate rainfall, they fill up in the rainy season. Such ponds are known as hara and, given favourable conditions such as limited seepage, a hara may last for some weeks or even a month or two into the dry season.

A hara is not subject to quite the same regulations as a permanent well, but to much more than lola water. A hara needs at least some upkeep and maintenance and some regulation of its use. Most hara are fenced in by thornbush enclosures that must be maintained, and silting soon becomes a problem. It thus seems reasonable to propose that the more reliably a hara reoccurs with the seasons and the more work goes into improving and maintaining it, the stricter the regulation of its use becomes, more like the use of the permanent deep wells that are found scattered in central Boranaland.

The wells are the most important sources of water, constituting a crucially important element of Borana pastoralism. These wells, known as ela, are important focal points of Borana social life. They are, without comparison, the most vitally critical ecologic resource. Economic and religious life centres on the wells and they are a constantly recurrent theme in Borana politics. Up-keep, control, utilization and maintenance of the wells are the constant concern of all Borana. Access to the wells and the work connected with them are very basic considerations of any stock management unit.

Practically all the Borana wells are concentrated in about 35 locations in the central part of Boranaland, to the south and west of the Dawa River (see Figure 2). Each location has a number of wells, usually between 10 and 20. The wells are of two types and both types may be found within the same location, probably draining different aquifers. They are either sunk deep through the rock

Figure 2. Distribution of major Borana wells.



(ela tula) or are shallow, wide shafts dug out in alluvials such as sand or gravel (ela adadi).

Adadi wells are still being excavated in Borana, but digging tula wells seems to be a forgotten art. It is not certain who dug the existing tula wells in the first place. Haberland is inclined to believe that they are the work of an ancient (unknown) northeast African megalithic culture (Haberland 1963:75). Legesse seems to accept that the Borana themselves dug them (Legesse 1973:86), while the Borana claim that they were dug by the Warday, the Southern Oromo people now found in Kenya, before the Borana expelled them from their areas in Ethiopia.

Whatever the case, such wells are no longer being dug. At the most, old shafts that have filled up with sand and earth through disuse may be recleared, but re-excavating tula wells and digging adadi wells are both formidable tasks. Haberland estimates that on average some 2 000 cubic m of sand and earth must be moved (Haberland 1963:76) and Legesse rightly points out that digging a well is a considerable task, requiring careful planning and an ample reserve of resources. In the example Legesse mentions, the re-excavation of an old tula well cost the entrepreneurs 280 head of cattle over a period of seven months (Legesse 1973:87).

The total number of wells in Boranaland may thus vary slightly over time, but for practical purposes the number of wells may be taken as constant. The capacity of individual wells within the same locality may vary, but there is no clearcut tendency for wells of either type to produce higher yields.

3.0 Borana Well Organization

The ownership of wells and the regulation of access to water in Borana are complex. Every well is known as the 'well of clan X'. The clan identity of the well corresponds

to the clan identity of the abba ela, or the father of the well. The relationship that obtains between the abba ela and 'his' well is known as confi. But, as will become clear later, it is difficult to translate confi to mean ownership in the Western sense of the word. The confi is ... inherited and cannot be lost, even if the well collapses through disuse and somebody other than the abba ela or his descendants re-excavates it.

The confi may be transferred to a caretaker on a temporary basis if the abba ela moves from the location. An abba ela who is present at 'his' well is known as chokorsa, while a caretaker is simply a holder of the confi. The holder of the confi, whoever he is, is kept under constant scrutiny by the jarsi gosa, the clan elders, who see to it that he discharges his obligations in accordance with the ada-sera Borana, the customs and laws of the Borana. In case of abuse, the clan elders ultimately have the authority to take away the confi from the abba ela and pass it on to a close agnate, but this happens very rarely.

The daily routines at the well are supervised by an officer known as abba hirega, the father of the (watering) order. The watering rota at a well spans three days. On the first of these three days the holder of the confi usually functions as abba hirega himself. The two other days are under the supervision of abba hirega appointed by the well council (cora ela) which is composed of the users of the well.

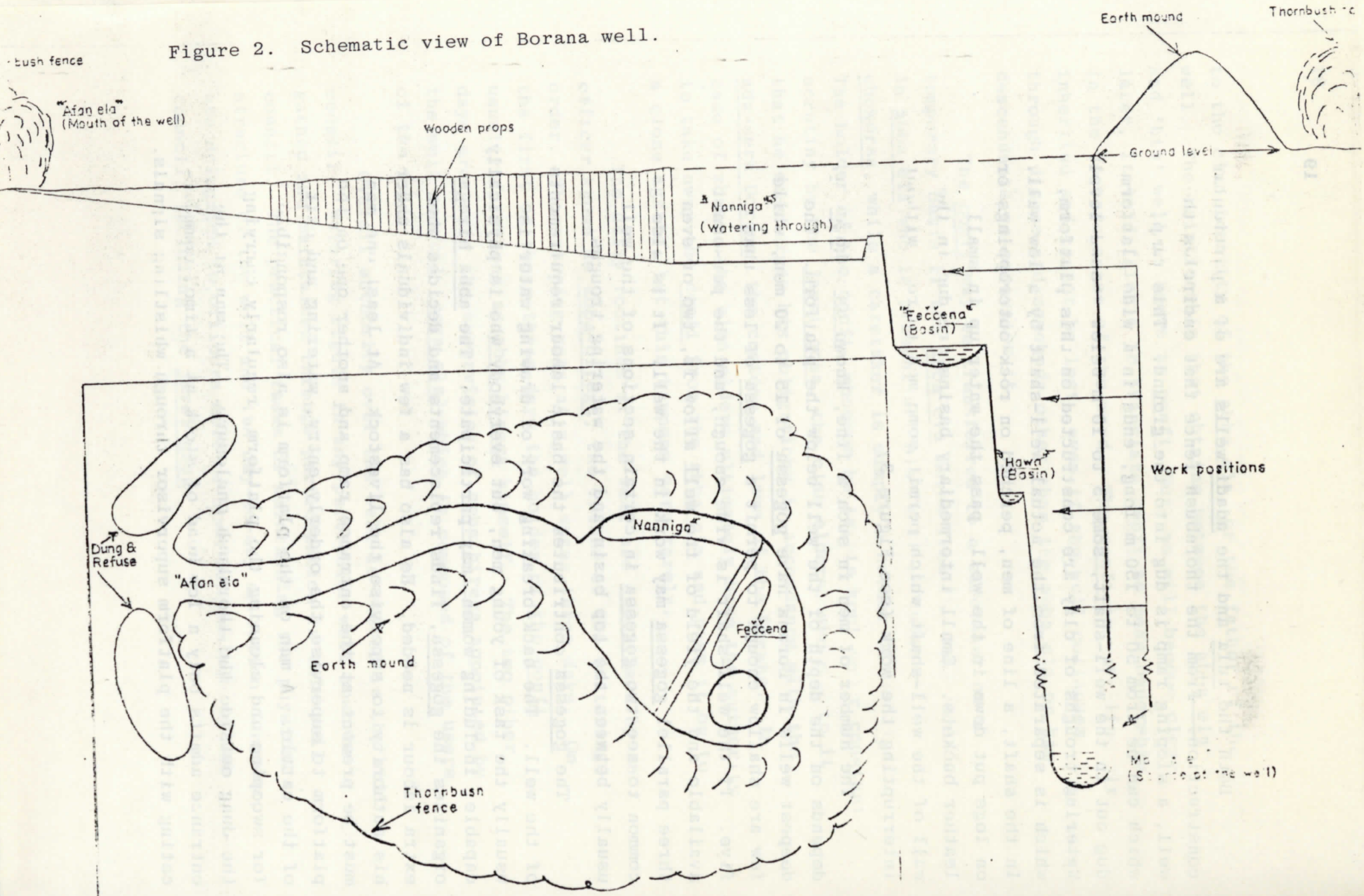
Overall authority over the well is vested in the well council. Watering rights in any particular well must be gained and maintained through participation in this well council. The practical tasks of maintaining the physical structure of the well and its day-to-day operation, however, are delegated to officers more or less responsible to the council, including the jarsi gosa.

Both the tula and the adadi wells are of a particular construction. From the thornbush fence that encircles the well, a sloping ramp is dug into the ground. This ramp, which can be from 50 to 150 m long, ends in a wide platform dug out in the well-shaft, some 5 to 10 m below ground level. Watering troughs of clay are constructed on this platform, which is separated from the actual well-shaft by a low wall. In the shaft, a line of men, perched on rock outcroppings or on logs put down in the well, pass the water up in small leather buckets. Small intermediary basins are dug in the wall of the well-shaft which permit some men to rest without interrupting the work (see Figure 3).

The number of men in such a line, known as a gogessa, depends on the depth of the well below the platform. The deepest wells in Borana have gogessa of 15 to 20 men, while few are shallow enough to permit a gogessa of less than five. If the well-shaft is wide enough, and the personnel available and the yield of the well allow it, two or even three parallel gogessa may work in the well. It is also common to see two gogessa in certain sections of the well, usually between the top basin and the watering troughs.

The gogessa contributes the basic labour requirements of the well. The back-breaking work of drawing water is usually the task of young men, but everybody who is physically capable, including women, may participate. The abba hirega organizes the gogessa, finds replacements and decides when extra labour is needed. He also has a few individuals under his authority to supervise the livestock. At least one man must be present at the entrance ramp and another one on the platform to supervise the orderly entry, watering and exit of the cattle. A man on the platform is also responsible for sweeping and cleaning the platform, regularly carrying the dung outside the thornbush enclosure. The man at the entrance admits only a few head of stock at a time, communicating with the platform supervisor through whistling signals.

Figure 2. Schematic view of Borana well.



The watering troughs are plastered with fresh clay every morning, and other occasional maintenance work is done throughout the dry season when the well is in use. After each rainy season the wells are cleaned. Flood water washes sand and dirt into the well and erodes the walls of the ramp and the platform. New watering troughs must be constructed, the walls must be propped up and the fence surrounding the well must be put in order.

It should thus be clear that a continuous and coordinated supply of labour is absolutely essential for the operation of a Borana well, both in the short and long run. This labour force is supplied by the users of the well. Constant participation in the practical tasks involved in running the well is a necessary condition for the maintenance of watering rights. Another necessary condition is participation in the well council.

The most important task of the well council is to decide on the watering rota of the well, which implies the allocation of watering rights. There are few explicit and formalized rules governing the allocation of such rights, but, with water a scarce resource and considering the very orderly fashion in which work at the wells is carried out, there must be mechanisms governing the allocation of rights and some powerful sanctions underlying the decisions of the well council.

In principle, or according to rules elicited from informants, a clansman of the abba ela cannot be excluded from the well or denied watering rights. But any watering rota will show that there are many users of a well who are not clansmen, and that clansmen of the abba ela are users of other wells in the same locality, belonging to other clans. Since the wells are known as belonging to specific clans, clan affiliation is obviously one important reference in gaining access to a well. The clan organization of the Borana, however, is cross-cut by other organizing principles, such as the Gada system and the age-sets. Clans also have

links of marriage, friendship and alliance with each other, and all these links are potentially legitimizing bases for claiming water rights in the well of any particular clan. Gaining access to a well depends on how successful a man is in presenting and defending his claims before the well council, which again primarily dependson what kind of support he is able to mobilize among the council members.

The meetings of the council are not very formal and anyone is free to attend. The same rules of conduct apply for the cora ela as for any other cora, being basically any man present is free to voice his opinion. A Borana may not tell another Borana to keep quiet in such meetings. do so would be a serious affront and bring about claims for compensation. Decisions in the cora are reached through the gradual formulation of consensus, not through any kind of voting procedures, but always with detailed reference to the ada-sera Borana.

The potential bonds of alliance any man wishes to use to claim watering rights in a well must be legitimized with reference to the ada-sera. It is important to note, however, that this concept of ada-sera is not static. Borana law is not clearly codified in rigid bodies of rules and regulations, so there is considerable leeway for adaptations to particular situations. Legality and legitimacy in this frame of reference provide ample room for individual understandings of what is legal. In the context of the well council, this means that there will always be a number of cases that are at best doubtful. At first, they may be accepted though understood to be only marginally legitimate, but, given successful political tactics, these cases will over time become more and more safely entrenched in the rather fluid concept of ada-sera. The customs and laws of the Borana may thus, particularly in the context of water, be said to be what the cora decides they should be.

The tactics involved in these decisions are complex and require a great deal of covert negotiation and mobilization of support. In practical terms, this means that every user of the well must keep a watchful eye on the politics of the well council and on his own hard-won right to water, to make sure that his rights are safely within the limits of what is understood to be ada at any given time.

3.1 Some Implications of the Well Organization

Access to permanent water is a basic pre-condition for animal husbandry in Borana. Access to water, which is restricted, regulates access to pasture, which in principle is free but in practise controlled by the availability of water. The Borana have a sophsticated system for the utilization and control of water which has several important implications for the ecological balances involved in their adaptation to their environment.

Water utilization in Borana is labour intensive, with labour supplied by the users of a well in proportion to the number of animals watered. Thus, labour is not critical for herding, but very much so for watering. The labour required to herd one animal is sufficient to herd several, which means that within certain limits the number of animals in a herd may be allowed to grow without a directly proportional increase in labour requirements. But to water animals from a Borana well, each extra animal requires an additional input of labour. This means that the availability of labour is a very important consideration in Borana livestock management and that herd growth presupposes an increase in the labour force.

There is a natural tendency for growth inherent in every herd, and as cattle numbers rise, labour becomes a constraint. Among the Borana, this dilemma is solved in several ways. Excess cattle, in this sense, are distributed to friends and allies, solving the problem of labour shortages

in the management unit of the donor as well as strengthening relationships (see Baxter 1970, particularly p. 120 ff.). Alternatively, a unit may try to bring in extra labour by borrowing herdsmen from other units through adoption and foster-parenthood, through herding contracts or even through clever manoeuvering in the well council. There are also cases where the abba hirega is bribed to admit cattle for watering even if the herd-owner does not provide sufficient labour.

It is clear, however, that these strategies will in the long run siphon off cattle from the herd, whether through bribery, herding contracts or relationships of friendship and alliance. Whether these strategies in the long run will lead to an overall reduction in herd size depends on the balance a herd-owner can strike between the natural growth of the herd and the price he has to pay for extra labour. Should these strategies fail, however, the herd size is ultimately and harshly regulated through increased mortality. If there is no labour available to water the stock, the excess cattle will simply die off until the herd size stabilizes at a point where labour and animals again are in balance.

The labour requirements for watering also involve another consideration. The physical structure of most wells implies that a labour force is required to draw even a single bucket of water which is larger than what any single management unit can supply. The wells thus force cooperation between different units. A stable and coordinated labour supply is also crucial to keep the wells functioning, and a breakdown of the relationship between the cooperating units is detrimental to everyone involved. The orderly resolution of conflict, immediate sanctions on physical violence, a commonly shared moral code epitomized in the nagaya Borana (the peace of the Borana) and cooperation between management units in maintaining and using the wells may thus be regarded

as interdependent and mutually re-inforcing factors Borana social organization.

Access to water in Boranaland is not gained through force, but by establishing and legitimizing a link with the well council. The organizational units of Borana society, such as the lineage organization, the Gada system, the age sets and the relationships between them, provide a grid of potential links among individuals. These different relationships may be tactically evaluated and actualized, both for establishing links with the well council and for mobilizing support in pressing claims for watering rights. How successful an individual is depends on several factors. Support in the well council must somehow be repaid, and the compensations a claimant (covertly) has to offer are important, whether they involve bribery, support in other contexts, the exchange of cattle, lending of labour or even politico-religious expertise. It is not possible to view the exchange of such favours in isolation from other events which take place in fora other than the well council.

4.0 Conclusion

Sustained pastoral production among the Borana depends on the balanced relationship between pasture, animals and humans. This discussion has tried to show how the availability of water and the social control mechanisms regulating this scarce resource imply a control over stocking rates on the Borana range. Other features of Borana social organization impose strict rules on human reproduction. This implies a situation where manpower is in short supply in a society based on a labour-intensive economy.

The major sanction underlying the Borana system of water control is, of course, exclusion from water. Failure to supply labour to the well and failure to participate in the politics of water will lead to rapid exclusion. This participation depends on labour in proportion to the livestock.

Excess stock is ultimately removed by mortality, but before this stage is reached there are several social mechanisms for both dispersing cattle and mobilizing labour.

The basic contention here is that the Borana have achieved a well-balanced ecological adaptation and that it is balance is maintained by a complex social structure which is closely related to the regulation of access and utilization of the critical water resource. Under the traditional circumstances of Borana pastoralism, the organizational forms of Borana society thus constitute an adequate adaptation to the environment. This fact has important implications for planning development in Boranaland.

In technical terms, the pastoral resources of Boranaland can easily be expanded by digging stockponds or sinking boreholes. The sociological implications of this, however, are likely to be far-reaching. If water is made freely available, this means that the existing social organization, which regulates labour inputs, access to water and control over pasture, is stripped of a major function.

At this stage, one can only predict that this loss of function will weaken the social controls of the existing system. If the social controls are weakened, however, one may further predict that the restrictions on human reproduction will be removed as the social system on which they rest disintegrates. Free reproduction and free access to water may be advantageous for the individual in the short run, but will have serious maladaptive implications. The short-term expansion of the pastoral resource will be followed by long-term degradation.

Development inputs in this context should be designed to be accommodated within existing local control mechanisms. It must here be stressed that this cannot be achieved in a once-and-for-all blueprint fashion. On the contrary, development must include a component of continuous monitoring to ascertain how the local population adapts to innovations.

As it may safely be assumed that these adaptations are not likely to be foreseen by the planners, no matter how skillful or imaginative they are, a development project in this area must be flexible enough to modify specific development inputs as information on desirable o undesirable trends becomes available.

BORANA GLOSSARY

abba ela	-	well 'owner'
abba hirega	-	well supervisor
ada	-	custom
Adolessa	-	period between the rains (June-September)
awradja	-	administrative sub-division of Ethiopia (Amharic)
Bonhaggaya	-	main dry season (December-March)
confi	-	'ownership' or 'trusteeship' of a well
cora	-	assembly, meeting, council
cora ela	-	well council
ela	-	well
ela adadi	-	shallow well
ela tula	-	deep well
fora	-	grazing expedition
Ganna	-	main rainy season (March-May/June)
gogessa	-	a) one of five series of generation classes (called patriclasses by Legesse)
		b) a line of men drawing water in a well
Haggaya	-	secondary rainy season (September-November)
hara	-	stock pond
jarsi gosa	-	clan elders
lola	-	flood water, surface water
loni	-	cattle
loni fora	-	dry herd
loni warra	-	milking herd
luba	-	generation class in the Gada system
Nagaya Borana	-	peace of the Borana
sera	-	law
warra	-	homestead, family

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